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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
GUPTA, PARUL H	
ART UNIT	**PAPER NUMBER**
2627	

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/627,081	SASAKI ET AL.	
	Examiner	Art Unit	
	Parul Gupta	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,5 and 7-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4-5, and 7-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 4-5, and 7-12 are pending for examination as interpreted by the examiner. The amendment filed on 8/11/06 was considered.

Specification

2. The disclosure is objected to because of the following informalities: minor typographical errors such as the use of "characteristics" instead of "characteristic" in paragraph 0058, "coincides" instead of "coincide" in paragraph 0076, and "lever" instead of "level" in paragraph 0085. Appropriate correction is required. Applicant's cooperation is requested in correcting any other errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4-5, 7, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagawa, US Patent Publication 2001/0026522 in view of Yamanaka, US Patent 6,771,584 and Furukawa, US Patent 6,643,230.

Regarding claim 1, Yanagawa teaches a spherical aberration correcting apparatus comprising: a correction amount deciding unit ("system control circuit" of element 6 in figure 2) configured to decide an optimum correction amount of the spherical aberration so as to minimize the spherical aberration; and a spherical

aberration correcting unit ("servo control circuit" of element 5 in figure 2) configured to correct the spherical aberration according to the optimum correction amount of the spherical aberration, wherein the characteristic obtaining unit is configured to detect a pit level ("detected light from the pits") as the parameter according to a light reflected from the optical recording medium (column 5, lines 20-28) while the test recording unit performs the test recording (test recording described in column 15, lines 47-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of test recording to obtain a characteristic of a parameter as taught by Yamanaka into the system of Yanagawa. This would yield a method and apparatus capable of correcting spherical aberration without giving rise to an increase in scale of the apparatus or an increase of the cost (column 3, lines 1-7). Yanagawa in view of Yamanaka does not but Furukawa teaches a spherical aberration correcting apparatus, with a unit that is configured to detect a pit level (a similar method of gaining the "residual error value" is explained in the given section) and at least one of a read level, a write level and a recording power (a similar method of gaining the "amplitude width value of the disturbance signal" is explained in the given section) according to a light reflected from the optical recording medium, the parameter including the pit level, the read level, the write level and the recording power, the pit ratio representing the ratio of one of the read level or the write level to the pit level (column 3, line 60-column 4, line 25). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the spherical aberration correction apparatus utilizing the pit value and pit ratio of Furukawa into the apparatus of Yanagawa in view of Yamanaka. This

would create accurate reading of information even if spherical aberration were generated by the thickness error in the transparent substrate of an optical disk (column 1, lines 31-35 of Furukawa).

Regarding claim 11, Yanagawa teaches an information recording system comprising: a spherical aberration correcting apparatus, a correcting amount deciding unit ("system control circuit" of element 6 in figure 2) configured to decide an optimum correcting amount of the spherical aberration so as to minimize the spherical aberration, and a spherical aberration correcting unit ("servo control circuit" of element 5 in figure 2) configured to correct the spherical aberration according to the optimum correcting amount of the spherical aberration; and a control unit ("system control circuit" of element 6 in figure 2 also serves this purpose) configured to, when detecting that the optical recording medium is set to the information recording apparatus, make control the spherical aberration correcting apparatus to correct the spherical aberration, wherein the characteristic obtaining unit is configured to detect a pit level ("detected light from the pits") as the parameter according to a light reflected from the optical recording medium (column 5, lines 20-28) while the test recording unit performs the test recording (test recording described in column 15, lines 47-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of test recording to obtain a characteristic of a parameter as taught by Yamanaka into the system of Yanagawa. This would yield a method and apparatus capable of correcting spherical aberration without giving rise to an increase in scale of the apparatus or an increase of the cost (column 3, lines 1-7). Yanagawa in view of Yamanaka does not but

Furukawa teaches a spherical aberration correcting apparatus, with a unit that is configured to detect a pit level (a similar method of gaining the "residual error value" is explained in the given section) and at least one of a read level, a write level and a recording power (a similar method of gaining the "amplitude width value of the disturbance signal" is explained in the given section) according to a light reflected from the optical recording medium, the parameter including the pit level, the read level, the write level and the recording power, the pit ratio representing the ratio of one of the read level or the write level to the pit level (column 3, line 60-column 4, line 25). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the spherical aberration correction apparatus utilizing the pit value and pit ratio of Furukawa into the apparatus of Yanagawa in view of Yamanaka. This would create accurate reading of information even if spherical aberration were generated by the thickness error in the transparent substrate of an optical disk (column 1, lines 31-35 of Furukawa).

Regarding claim 12, Yanagawa teaches a spherical aberration correcting method comprising the steps of: deciding an optimum correction amount of the spherical aberration so as to minimize the spherical aberration (paragraph 0039); and correcting the spherical aberration according to the optimum correction amount of the spherical aberration (paragraph 0039). Yanagawa does not but Yamanaka teaches an apparatus with a test recording unit configured to perform a test recording on an optical recording medium (column 15, lines 36-41); a characteristic obtaining unit ("variable frequency characteristic amplifier" of element 15 in figure 9) configured to obtain a characteristic corresponding to a parameter by the test recording, the parameter being correlated with

a spherical aberration and minimizes the spherical aberration according to the characteristic of the parameter ("performs correction in the frequency band of the signal output" of column 15, lines 47-55). The method of performing these functions is taught in column 15 lines 36-55. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of test recording to obtain a characteristic of a parameter as taught by Yamanaka into the system of Yanagawa. This would yield a method and apparatus capable of correcting spherical aberration without giving rise to an increase in scale of the apparatus or an increase of the cost (column 3, lines 1-7). Yanagawa also teaches a step of obtaining a characteristic comprising the steps of: detecting a pit level ("detected light from the pits") and at least one of a read level, a write level and a recording power according to a light reflected from the optical recording medium (different outputs of light as explained in column 5, lines 20-28) while the test recording is performed (test recording described in column 15, lines 47-55). Yanagawa does not but Furukawa obtaining the characteristic of the pit ratio, the parameter including the pit level, the read level, the write level and the recording power, the pit ratio representing the ratio of one of the read level or the write level to the pit level (column 3, line 34 to column 4, line 10). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the correction amount deciding unit and given ratios of Furukawa into the apparatus of Yanagawa. This would create accurate reading of information even if spherical aberration were generated by the thickness error in the transparent substrate of an optical disk (column 1, lines 31-35 of Furukawa).

Regarding claim 4, Yamanaka teaches a spherical aberration correcting apparatus according to claim 1, wherein the characteristic obtaining unit is configured to obtain the characteristic corresponding to the parameter while the test recording unit performs the test recording (column 15, lines 47-55).

Regarding claim 5, Yanagawa teaches a spherical aberration correcting apparatus according to claim 4, wherein the characteristic obtaining unit is configured to detect a pit level ("detected light from the pits") as the parameter according to a light reflected from the optical recording medium (column 5, lines 20-28) while the test recording unit performs the test recording (test recording described in column 15, lines 47-55), and to obtain the characteristic of the pit level (column 5, lines 20-28).

Regarding claim 7, Yamanaka teaches a spherical aberration correcting apparatus, wherein the test recording unit makes change to an amount of the spherical aberration within a range in which a predetermined value of the parameter is included (done by 'optical aberration correction element" of element 14 and "variable frequency characteristic amplifier" of element 15 of figure 9 as explained in column 15, lines 47-55) while performing the test recording (column 15, lines 36-45), the predetermined value of the parameter being set to correspond to a minimum of the spherical aberration (obvious based on design of apparatus).

Regarding claim 10, Yamanaka teaches a spherical aberration correcting apparatus according to claim 1, wherein the test recording unit is configured to perform

the test recording immediately before a recording of information on the optical recording medium (column 15, lines 36-41).

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagawa in view of Yamanaka and Furukawa as applied to claims 1 and 7 above, and further in view of Hayashi et al., US Patent Publication 2001/0040853.

Yanagawa in view of Yamanaka and Furukawa teaches a spherical aberration correcting apparatus according to the limitations of claims 1. The combination does not but Hayashi et al. a spherical aberration correcting apparatus, wherein the parameter includes a jitter, and the predetermined value of the jitter is minimum (given in paragraphs 0044 and 0045).

It would have been obvious to one of ordinary skill in the art at the time of the invention to factor jitter as taught by Hayashi et al. into the apparatus of Yanagawa in view of Yamanaka. Thus, jitter can be detected irrespective of the sizes of the detection areas of the photodetector (paragraph 0046 of Hayashi et al.).

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagawa in view of Yamanaka and Furukawa as applied to claim 7 above, and further in view of Nishi, US Patent Publication 2004/0174781.

Yanagawa in view of Yamanaka and Furukawa teaches a spherical aberration correcting apparatus according to the limitations of claim 7. The combination does not but Nishi teaches a spherical aberration correcting apparatus according to claim 7, wherein the parameter includes a β value ("amplitude of the shortest mark" is similar to β value), and the predetermined value of the β value is maximum (paragraph 0118).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given parameter and constraints as taught by Nishi into the system of Yanagawa in view of Yamanaka and Furukawa. The motivation would be because this value has good sensitivity and has relatively small deviation with respect to the center of margin in the methods in which it is used (paragraph 0118).

Response to Arguments

6. Applicant's arguments filed 8/11/06 have been fully considered but they are not persuasive. Applicant recites that Yanagawa in view of Furukawa does not teach "a calculation element configured to calculate a pit ratio indicating a ratio between the pit level and one of the read level, the write level, and a recording power to output the pit ratio as a signal indicative of the level of the reflected light"because Furukawa uses different values such as the "residual error value" and "amplitude width value of the disturbance signal: instead of a read level, write level, and a recording power. Thus, the method does not use the same elements and makes it impossible to obtain the tracking error signal if Furukawa does not cross any tracks. Although Furukawa has different values used, the method of detecting the ratio of the values as a signal indicative of the level of the reflected-light is the same as applicant. Yanagawa teaches all other elements of using the pit level to calculate the level of reflected-light. Thus, since only the method of Furukawa is being considered, it would be obvious to one of ordinary skill in the art at the time of the invention to combine the two references. Although both inventions are directed towards the same purpose (making them analogous art), Furukawa explains why his method yields more accurate results (column 6, lines 57-63)

than other methods. Yamanaka teaches a method and apparatus that will not give rise to an increase in scale of the apparatus or an increase of the cost (column 3, lines 1-7). Thus, incorporating the methods of Furukawa and Yamanaka in Yanagawa is advantageous and is not merely hindsight.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on 571-272-4483. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andrea Wellington
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SUPERVISORY PATENT EXAMINER

PHG
10/17/06